

*What is claimed is:*

## 1. A high performance stator device comprising:

5 a stator portion being provided to various stator coils to be installed in stator grooves; wherein the stator groove having a space for receiving windings of stator coil with more windings;

a plurality of stator coils including a plurality of stator coils with various numbers of windings; the coils being overlapped or adjacent arranged to be placed in the same stator portion, each of the coils being  
10 opened to other coil; each of a wire head and wire tail of each of the stator coils being connected to a switches so as to be formed with a Y type three phases connection.

a plurality of switches each having an input end controlled by a management control unit of a control system through the output point;  
15 the control joints of the plurality of switches being connected to the wire heads and wire tails of the stator coils; and

the control system having a management control unit therein which sets the switching forms of switches; the management control unit managing all the switching forms of the switches; after switching the switches, the  
20 coils of the stator portion being connected in series to be formed with different connections or selectively switching to any one of the coils so as to be formed with various networks of the coils with different numbers of windings; a coil winding network with various numbers of windings being formed in the stator portion through the control of the  
25 management control unit of the control system, i.e., in the network,

various and changeable inverse electromotive force  $K_E$  and twisting force constant  $K_T$ .

2. The high performance stator device as claimed in claim 1, wherein there are at least three coils, and each of the coils have the same or different numbers of windings; through management control unit of the control system, the switches are switched to one of the coils or the plurality of coils are partially or wholly connected in series to be formed as a winding network; numbers of windings are varied in any forms; the inverse electromotive force  $K_E$  and twisting force constant  $K_T$  are varied in different ways.
3. The high performance stator device as claimed in claim 1, wherein there are at least two coils, and each of the coils have the same or different numbers of windings; through management control unit of the control system, the switches are switched to one of the coils or the plurality of coils are partially or wholly connected in series to be formed as a winding network; numbers of windings are varied in any forms; the inverse electromotive force  $K_E$  and twisting force constant  $K_T$  are varied in different ways.
4. The high performance stator device as claimed in claim 1, wherein change of the management control unit of the control system is determined base on an rpm value of an operating speed; an operating speed sensor detects an detected operating speed signal which is inputted to an input end of the input control system for being as a control and managing means of the switch.
5. The high performance stator device as claimed in claim 1, wherein

change of the management control unit of the control system is determined base on an operating current; an operating current sensor detects an operating current which is inputted to an input end of the input control system for being as a control and managing means of the switch..

6. The high performance stator device as claimed in claim 1, wherein change of the management control unit of the control system is controlled manually; in this process, control signals are manually inputted through the control signal input end to the control system; the management control unit of the control system cause a switch signal output end to output the form of the input signal according to the form of the input signal from the control signal input end so that the switches are switched to a winding network with respect to require number of windings.

7. The high performance stator device as claimed in claim 1, wherein numbers of windings of the coils in the stator portion, inverse electromotive force  $K_E$ , twisting force constant  $K_T$  can be varied in various forms, thereby, in the lower, middle and high operation speed ranges of an electromotive machine or generators, the operational efficiencies in the whole areas are improved uniformly, thereby having a high EFF value.

8. The high performance stator device as claimed in claim 1, wherein numbers of windings of the coils in the stator portion are varied in various forms, and thus the electromotive machine causes the numbers of windings of the coils, twisting force constant  $K_T$  and inverse

electromotive force  $K_E$  are be various in low and middle operational speed with respect to the requirement of the output twisting force of the electromotive machine; therefore, an output twisting force of the electromotive machine is improved properly.

- 5 9. The high performance stator device as claimed in claim 1, wherein numbers of windings, wire diameters, and winding ways of the stator coils are changed with changes of manufacturing methods.
10. The high performance stator device as claimed in claim 1, wherein the switch is a relay with joints for switching the coils of the stator portion.
- 10 11. The high performance stator device as claimed in claim 1, wherein the switch is a jointless semiconductor device for switching the coils of the stator portion.
12. The high performance stator device as claimed in claim 1, wherein the stator coils has a three phases Y coil winding type for being changed and managed by the control system.
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- 15.13. The high performance stator device as claimed in claim 1, wherein the stator coils has a three phases coil winding type for being changed and managed by the control system.14. The high performance stator device as claimed in claim 1, wherein the stator coils has a single phases coil winding type for being changed and managed by the control system. The high performance stator device as claimed in claim 1, wherein the number of the switches is determined by the number of coil windings after the stator coils are switched; a single coils have the number of coil windings  $L_1$  and  $L_1 + L_2$ ,  $L_1$  is serially connected to the
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- 25  $L_2$ , the change of numbers of two coil windings needs a switch 31 for

controlling; the coils of three phases need three switches for controlling.

16.The high performance stator device as claimed in claim 1, wherein the number of the switches is determined by the number of coil windings after the stator coils are switched; a single coils have the number of coils winding L1 and L1 + L2, L1 is serially connected to the L2, the change of numbers of two coils needs two switches for controlling; the coils of three phases need six switches for controlling.

17.The high performance stator device as claimed in claim 1, wherein the number of the switches is determined by the number of coil windings after the stator coils are switched; the number of the coil windings are responsive to the configurations of joints, and thus the numbers of the switches are different.

18.The high performance stator device as claimed in claim 1, wherein change of the management control unit of the control system is determined based on a twisting force; a twisting force sensor detects the twisting force signal which is inputted to an input end of the input control system for being as a control and managing means of the switch.